

Varicella (Chickenpox) Reporting and Disease Control Guidelines

Kansas Department of Health and Environment (KDHE)

Bureau of Epidemiology and Disease Prevention

Varicella (chickenpox) cases should be reported to the state or local health agency within 7 days of suspicion/diagnosis (K.A.R. 28-1-2)

Background

- Prior to Varicella vaccine being licensed in the United States, almost everyone developed Varicella. During the early 1990's, before the vaccine was licensed, there were an estimated 4 million cases of varicella a year in the United States with approximately 11,000 hospitalizations and 100 deaths.
- Varicella vaccine was licensed in 1995 and is recommended for routine use in infants 12-18 months of age and for susceptible older children, adolescents and adults.
- On April 15, 2004 Kansas implemented a school requirement for Varicella. As of the 2004-2005 school year, all children entering kindergarten are required to have Varicella vaccine, a history of chickenpox or an exemption to vaccination to attend school. (K.A.R. 28-1-20 and K.S.A 75-5209)
- Varicella became a Kansas reportable disease in April, 2004.

Clinical Description

- Incubation period is usually 14-16 days from exposure (range 10-21 days).
- A mild prodrome may precede the onset of rash. Adults may have 1-2 days of fever and malaise prior to rash onset; however, in children, rash may be the first sign of chickenpox.
- Rash is generalized, pruritic and rapidly progresses from macules to papules to vesicular lesions before crusting. Several crops of these vesicles will develop over a period of 2-4-days with lesions presenting in several stages of development. Lesions generally appear first on the head; are usually concentrated on the trunk and may appear on the mucous membranes. (A link to photographs of wild-type varicella rashes is available on the KDHE website at: <http://www.kdhe.state.ks.us/chickenpox.html>)
- Varicella is highly contagious. Transmission is through contact with respiratory secretions or contact with fluid from vesicles (prior to crusting). Varicella may also spread indirectly through contact with articles freshly soiled with respiratory secretions.

- Infectious period is usually 1-2 days before the rash appears until lesions have formed scabs or crusts (usually 5 days after rash onset).
- Complications of varicella include bacterial infection of lesions (including invasive Group A Strep), encephalitis, pneumonia (rare in children) and death.
- Varicella usually results in life-long immunity. A second episode of varicella is uncommon, but may occur, particularly, in immunocompromised persons.
- Varicella virus remains inactive in clusters of nerve cells adjacent to the spinal cord after chickenpox resolves and reactivation can occur later in life resulting in shingles (herpes zoster). Contact with shingles lesions (prior to crusting) can cause chickenpox in a susceptible individual.

Varicella Case Definition

Clinical case definition

Varicella (chickenpox) is an illness with acute onset of diffuse (generalized) maculopapulovesicular rash without other apparent cause. In vaccinated persons who develop varicella more than 42 days after vaccination (breakthrough disease), the disease is almost always mild with fewer than 50 skin lesions and shorter duration of illness. The rash may also be atypical in appearance (maculopapular with few or no vesicles).

Laboratory criteria for diagnosis

- Positive serologic test for varicella-zoster immunoglobulin M (IgM) antibody
- or**
- Isolation of varicella-zoster virus (VZV), demonstration of VZV antigen by direct fluorescent antibody (DFA) or by polymerase chain reaction (PCR) tests from a clinical specimen
- or**
- Significant rise in serum varicella immunoglobulin G (IgG) antibody level by any standard serological assay

Case classification

- **Probable:** A case that meets the clinical case definition is not laboratory confirmed, and is not epidemiologically linked to another probable or confirmed case.
- **Confirmed:** A case that is laboratory confirmed or that meets the clinical case definition and is epidemiologically linked to a confirmed or probable case.

* **Note:** Two probable cases that are epidemiologically linked are considered confirmed, even in the absence of laboratory confirmation.

Reporting

1. Report case in HAWK or complete varicella report form and send/fax to KDHE. Varicella report form can be obtained at:
<http://www.kdhe.state.ks.us/chickenpox/index.html>
2. Determine reported case classification: probable versus confirmed.
3. Please contact KDHE Vaccine Preventable Disease Coordinator at 785-296-2774 or the Epidemiology hotline at 877-427-7317 if a varicella death occurs.

Disease control Recommendations

Individual cases of varicella typically are not investigated. However, the following guidance may be useful in specific situation when public health is consulted.

1. Varicella cases should be excluded from school, daycare or work and should voluntarily self-isolate at home until all lesions have formed scabs or crusts (usually 5 days after rash onset).
2. Only persons with a history of chickenpox or varicella vaccination should come in contact with the case until lesions have formed scabs or crusts.
3. Hospitalized varicella patients should be in isolation with airborne precautions and be attended by or visited only by persons who are immune to varicella.
4. Administration of varicella vaccine to susceptible contact age ≥ 12 months may abort infection or modify the disease if given with 3-5 days of exposure, unless vaccine is contraindicated.
5. Non-immune contacts that are unable to receive varicella vaccine within 3-5 days of exposure should be aware of the incubation period for varicella (10-21 days) and symptoms of the disease and isolate themselves at home if symptoms develop.
6. Varicella vaccination of non-immune childcare or school contacts may be recommended even if the time since exposure is > 5 days, to provide protection from future exposure, especially if there is ongoing transmission in that setting.
7. A form letter to notify parents of varicella in a school or childcare facility can be obtained on the KHDE web site at:
<http://www.kdhe.state.ks.us/chickenpox/index.html>
8. Recommendations for students developing rashes from 7-42 days following varicella vaccination are posted on the KDHE website listed in #7.

9. Varicella Zoster Immune Globulin (VZIG) is recommended for post-exposure prophylaxis of susceptible persons who are at high risk for developing severe disease and for who varicella vaccine is contraindicated (i.e. newborns, infants, immunocompromised children, susceptible pregnant women, hospitalized premature infants > 28 weeks gestation whose mother has no history of varicella and hospitalized premature infants < 28 weeks gestation, regardless of the mother's varicella history). VZIG is most effective in preventing varicella infection when given within 96 hours of varicella exposure. Healthcare providers can obtain VZIG by contacting Massachusetts Public Health Biological Labs at 617-522-3700, ext 264.

Outbreak Investigations

Investigation of all varicella outbreaks is neither possible nor desirable. Investigation of varicella outbreaks should be prioritized as follows:

1. Outbreaks involving deaths
2. Outbreaks involving patients and staff in health-care settings or correctional facilities
3. Outbreaks associated with severe complications (i.e., pneumonia, encephalitis, serious infectious complications such as invasive Group A streptococcal infection or hemorrhagic complications) and/or hospitalizations
4. Outbreaks among persons who are immunocompromised due to HIV infection, cancer or immunosuppressive therapy
5. Outbreaks involving adolescents and adults
6. Outbreaks occurring among vaccinated populations
7. Clusters of reports of varicella, which may suggest improper storage and handling of vaccine
8. Outbreaks involving a large number of cases

KDHE can assist with the investigation of high priority varicella outbreaks. Additional varicella outbreak guidelines are available in CDC's "Manual for the Surveillance of Vaccine Preventable Diseases", which can be found at:

www.cdc.gov/nip/publications/surv-manual/default.htm

If you would like assistance regarding a case of varicella, or an outbreak investigation, please contact your KDHE regional immunization field staff, KDHE regional medical investigator, or call the Epidemiology hotline (24 hrs a day/ 7 days a week) at 877-427-7317.